183

WORLD BREWING CONGRESS 2016

Sustainability of Malt Barley Production in the U.S.

Collin Watters, Montana Wheat and Barley Committee

cwatters@mt.gov

World Brewing Congress
August 13-17, 2016
Sheraton Downtown Denver
Denver, CO 80202, U.S.A.

Summary

Malting barley growers in the United States strive for efficiencies in their operations, leading to continuous sustainable improvements over time. Recent developments in precision farming technologies, soil conservation, and health measures, as well as irrigation efficiencies have enabled malt barley growers to maximize production using fewer resources over time. In addition, diversification of plant genetics has led to more high quality malt barley being produced in rainfed, or non-irrigated areas.

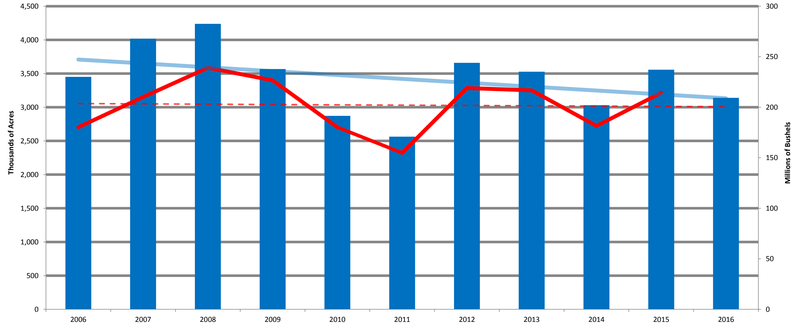
The Pillars of Sustainability

Environmental: Barley farmers continuously protect and enhance ecosystems through soil health improvements and water conservation to achieve gains in productivity.

Economic: Malting barley is a specialty crop that generates good revenues for growers. Farmers make business decisions each day that affect their bottom lines.

Social: Most malt barley is produced by multi-generational family farms. These families and the businesses that support them are the foundation of communities throughout the U.S.

Productivity

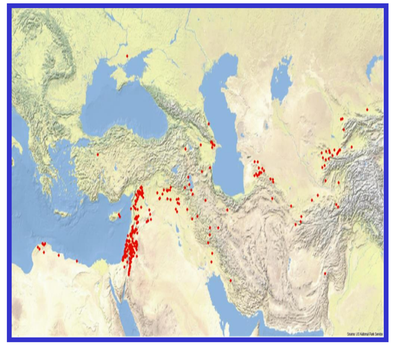


U.S. barley production (in red) has remained steady over the past ten years, but the amount of planted acres (in blue) in the U.S. has decreased. Growers have maintained productivity through resource optimization and operational efficiency improvements over time.

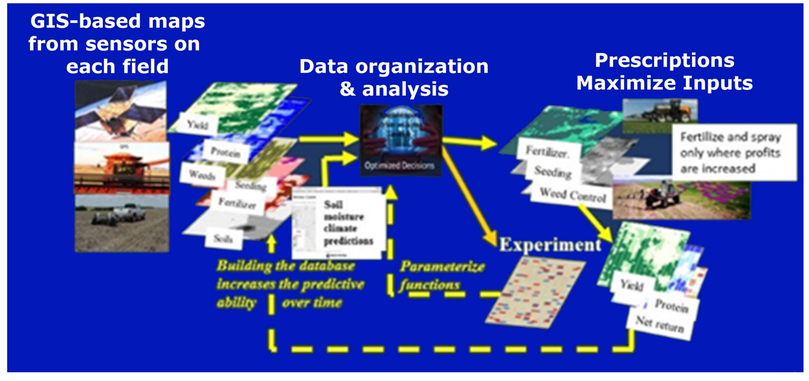
Plant Breeding

In addition to traditional plant breeding techniques, barley breeders utilize cutting edge technologies to develop new varieties. Marker assisted selection and gene editing techniques may help speed up development and provide agronomic and end-use quality improvements.

Wild barley (shown here in red) is found in many different growing regions over the world and breeders utilize this natural genetic diversity to achieve improvements. A collection of over 20,000 lines is now in use in breeding programs.



Precision Farming



Advanced Research

One example of exciting crop research is the recently completed investigations into "intercropping", where malting barley is grown in combination with other plants. These trials have demonstrated success and shown the benefits of new ideas in production agriculture. These results may be further described through a new field of agricultural research which is focused on illuminating the soil microbiome. This work will help growers better understand the interactions among plants, soils and microbiota.

As barley production in the U.S. moved west to more arid climates, water has been, and will always be, a critical input for farmers and the industry as a whole. Growers have continuously improved capacities by investing in systems that conserve energy and water. Irrigation and evapotranspiration research currently underway has the ability to help farmers optimize costly water applications and conserve as much of this vital resource as possible.